

STANDARD SPECIAL PROVISIONS

GENERAL

1. Work on this sewer construction contract is to be performed in accordance with *STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, 6TH EDITION*, dated December 22, 2003, and any addenda thereto, hereinafter referred to as the *STANDARD SPECIFICATIONS*.
2. Department of Public Works General Specifications, dated January 31, 1992, applies to this contract and will supersede any part of the specifications which differs there from.
3. Payment to the contractor will be deemed timely if the payment is mailed, delivered or transferred within 60 calendar days after receipt of a properly completed invoice or receipt and acceptance of the property or service, or the date of final completion as determined by the City when all corrective measures are complete on punch list items under the order or contract, whichever is later. If the City does not make payment by the 60th calendar day, the City shall pay simple interest beginning with the 31st calendar day at the rate of one percent (1%) per month. No interest will be paid on final payments of ten percent (10%) of the contract, or \$1,000, whichever is greater.
4. The contractor shall notify the Milwaukee Metropolitan Sewerage District (MMSD) of the commencement of construction at least three district business days in advance. This notice may be provided by mail, telephone, fax or other means that provide actual notice.
5. The contractor shall contact all businesses and property owners/occupants within the project limits to inform them of the project and provide them with any information deemed necessary for the successful performance of the contract and to inform them of any temporary sewer service disconnections.
6. The contractor shall maintain driveway access, local traffic, and access to businesses and property owners/occupants in the construction area.

GUARANTEE

7. The guarantee of the work performed, as defined in Section 1.5.6 of the *STANDARD SPECIFICATIONS* shall be for a period of two years. All other wording in Section 1.5.6 shall remain the same. (rev. 3/15/04)

INSPECTION

8. The amount of the per diem charge for inspection as referred to in Section 2.5.11 of the Department of Public Works General Specifications shall be \$375. (rev. 5 /1/13)

TRAFFIC CONTROL

9. The contractor shall comply with the City of Milwaukee, Department of Public Works booklet *TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK* and Part IV of the State of Wisconsin *MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES*. The bid item barricading shall include all barricades, signing etc. to comply with the above named manuals and any traffic management plans specified on the plan.

ENVIRONMENTAL CONTAMINATION

10. The contractor shall comply with all federal, state and local laws and regulations controlling pollution of the environment, including obtaining and executing all permits required. When contaminated soil is encountered, Mr. Walter Ebersohl of the Wisconsin Department of Natural Resources shall be contacted at (414) 961-2713. The handling, storage and disposal of such soil shall conform to their requirements. Costs associated with meeting these requirements shall be paid for in accordance with "cost plus basis" for extra work.

CONSTRUCTION

11. The contractor shall notify the Construction section at (414) 286-2497, at least three (3) working days before delivering any material or equipment to the work site, so that notices can be delivered to adjacent property owners informing them about the project.
12. Except for dead end manholes, the benches of all manholes to be constructed on this contract shall be constructed in a "U" shape to the elevation of the outside top of the downstream pipe.
13. Salvaged castings shall become the property of the contractor.
14. The minimum vertical distance from the top of any manhole or catch basin to the top of the corbel section shall be 22-inches.
15. If the contractor chooses the PVC pipe option, the manhole size may have to be increased in diameter in order to install the required pipe to manhole seal. The additional cost of the larger manhole shall be included in the unit price bid for the manhole. No extra will be paid for the increase in manhole size.
16. In addition to meeting the snow removal requirements of Chapter 2.7.5 of the Department of Public Works General Specifications, the contractor shall be responsible for the immediate removal by trucking of all snow from or adjacent to the job site which has not been removed by normal plowing and/or salting operations.
17. The City sometimes acquires for purpose of design certain information relating to soil conditions which may be encountered along the route of the work. The soil samples and test boring reports are available for examination in the Environmental Engineering section office, Room 820 of the Municipal Building.

While the information is believed to be accurate, the City does not guarantee same. The contractor shall make additional borings and/or test pits as the contractor may deem necessary. The contractor shall take out the necessary permits before performing any work at the site.

18. Grates for corrugated metal pipe in section 8.16.1 of the *STANDARD SPECIFICATIONS* shall be modified by elimination that the entire grating shall be painted with "one coat of red lead paint and two coats of good quality metal paint" and replaced with "white vinyl paint". The painting shall meet the steel structures painting Council's Specification SSPC-SP10. The surface preparation shall meet SSPC-SP11. The painting shall be applied in accordance with the most recent edition of the Steel Structures Painting Council, Good Painting Practices, Volume 1 or a coating systems that consist of a coat of an epoxy organic zinc rich primer, a coat of high build epoxy and an urethane protective coat which has been approved by the State of Michigan Department of Transportation.

MATERIALS

19. All material tests required on this contract shall be performed at a testing laboratory designated by the City.
20. The 30-inch diameter poly vinyl chloride (PVC) sewer pipe and fittings shall conform to the requirements of American Standards of Testing Material (ASTM) F949.

21. The required joints for combined sewer shall be the same as those require for sanitary sewers in Section 3.2.10 of the *STANDARD SPECIFICATIONS*. The joint requirements for storm sewers shall be modified to exclude cement mortar joints from the list of acceptable joint material for storm sewer. (rev. 4/26/04)
22. An independent testing laboratory at the expense of the manufacturer, vendor or contractor shall test all clay pipe furnished on this contract in accordance with the latest edition of ASTM C301. The test results shall be provided to the construction engineer for approval at the time of delivery.
23. The contractor shall install an internal frame/chimney seal (Cretex or equal) on all sanitary manholes. The cost of providing and installing the seal shall be included in the unit price bid for the respective diameter sanitary manhole with internal manhole seal.
24. Solid gasketed lids meeting the requirements of MS 58-A (Neenah component No. 1660-5060) shall be installed on all new sanitary manholes. The new lid shall fit the new frame without rocking or protruding above the surrounding surface.

CASTINGS

25. Castings will be furnished by the City and placed by the contractor unless otherwise specified in the contract documents. The Contractor shall transport such castings from the City sewer yard without cost to the City. Unless otherwise indicated on the plans, the following standard city castings are to be used:

Four-Flange Catch Basin/Inlet Frame (Alley).....	MS 8-A
Standard Manhole Frame.....	MS 21
Shaft Manhole Lid.....	MS 23-A
Shaft Manhole Grate.....	MS 24
Shaft Manhole Frame (10" Deep).....	MS 33-A
Shaft Manhole Frame (6" Deep).....	MS 33-B
Standard Manhole Adjusting Ring (1").....	MS 42-1
Standard Manhole Adjusting Ring (1.5").....	MS 42-1.5
Standard Manhole Adjusting Ring (2").....	MS 42-2
Standard Manhole Adjusting Ring (2.5").....	MS 42-2.5
Standard Manhole Adjusting Ring (3").....	MS 42-3
Four-Flange Catch Basin/Inlet Frame (C&G).....	MS 51
Catch Basin/Inlet Grate (Alley).....	MS 55
Shaft Manhole Adjusting Ring (2").....	MS 56-2
Shaft Manhole Adjusting Ring (2.5").....	MS 56-2.5
Shaft Manhole Adjusting Ring (3").....	MS 56-3
Catch Basin/Inlet Grate (C&G).....	MS 57
Standard Manhole Lid w/ Vent Hole.....	MS 58
Solid Gasketed Sanitary Manhole Lid.....	MS 58-A
Standard Manhole Grate.....	MS 60

(table rev. 1/18/07)

The contractor shall be solely responsible for the care of castings, which are furnished by the City for work under the contract, from the time the contractor accepts same at the designated sewer station.

BUILDING SEWERS

26. The basis of measurement for payment for relaid building sewers and drains shall be the total actual number of feet of building sewers and drains, excluding the fitting, regardless of diameter, which have been removed necessarily and unavoidably, and relaid and reconnected by the contractor.

27. The standard grades shall be a uniform rise of one inch in four feet (pitch = $\frac{1}{4}$ inch per foot) for building sanitary and combined sewers and a uniform rise of one inch in eight feet (pitch = $\frac{1}{8}$ inch per foot) for building storm sewers.

The minimum grade for building sewers shall be a uniform rise of one inch in eight feet (pitch = $\frac{1}{8}$ inch per foot) for building sanitary and combined sewers and one inch in 16 feet (pitch = $\frac{1}{16}$ inch per foot) for building storm sewers.

The minimum grade shall be used only when specified in the contract documents or with the approval of the commissioner.

Building sewers connected to main sewers shall begin at a 45° slope to a point where the extension of the standard grade shall provide the standard depth at the lot line. In case of shallow main sewers where the standard depth cannot be obtained, the minimum grades shall be used in order to attain maximum depth at the lot line.

The standard depth for building sewers at the lot line shall be as follows: 9 $\frac{1}{2}$ feet for building sanitary and combined sewers in residential areas; 11 $\frac{1}{2}$ feet for building sanitary and combined sewers in industrial and commercial areas and 4 $\frac{1}{2}$ feet for building storm sewers.

PAVEMENT RESTORATION

28. Prior to the placement of concrete pavement and/or concrete base in the trench area, the existing pavement shall be drilled to a depth of 6 inches at two-foot intervals, on all sides. Each hole shall be drilled at the midpoint of the depth of the existing concrete pavement. No. 6 ($\frac{3}{4}$ -inch diameter) epoxy coated dowels, 12 inches long, shall then be firmly embedded in the predrilled holes. The subgrade shall be recompact immediately after the holes are drilled and prior to the dowels being placed. Any dowels that are deemed loose by the engineer shall be wedged in tightly using concrete nails.
29. The bid item 4-inch asphaltic concrete shall consist of 4 inches of asphaltic concrete on 2 inches of $\frac{3}{4}$ -inch crushed stone, meeting street construction specifications 904.2.2, on 7 inches of No. 2 crushed stone. The cost of the crushed stone shall be included in the unit price bid for the 4-inch asphaltic concrete.
30. Upon completion of any pavement restoration, it is the responsibility of the contractor to replace any centerline, laneline, road markings, and crosswalks damaged during construction operations. The contractor shall contact traffic operations at (414) 286-3276 for questions about type or location of markings. The cost of this work shall be included in the unit price bid for the respective pavement.
31. Payment for the pavement sawing shall be limited to the perimeter of the trench. The contractor shall saw the pavement to the full depth. The cost of full depth sawing shall be included in the unit price bid for the pavement sawing.
32. Any additional pavement restoration and/or pavement sawing that is necessary due to the contractor's damage or negligence shall be at the contractor's expense.
33. If the contractor disturbs/damages any existing surface features during construction work, including but not limited to pavement, sidewalks, curbs, and lawns, these items shall be repaired at the contractor's expense to their pre-existing condition at no cost to the City.
34. The contractor shall note that the Construction Engineer may require changes in the pavement restoration and/or pavement sawing limits in the field. Any additional pavement restoration and/or pavement sawing quantities ordered by the Construction Engineer shall be paid based on the contract's unit price bid.

BACKFILL

35. Material used to backfill sewer trenches, as required in Chapter 2.6.2 of the *STANDARD SPECIFICATIONS*, shall meet the requirements for Dense Graded Base, 3/4-inch, section 305.1 of the *STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION* of the State of Wisconsin. The gradation requirements are as follows (rev. 6/20/05):

Dense Graded Base, 3/4-inch, Section 305.1:

<u>Sieve size</u>	<u>Percent passing by weight</u>
3/4-inch	95-100%
3/8-inch	50-90
No. 4	35-70
No. 10	15-55
No. 40	10-35
No. 200	5-15

36. Work shafts or manhole shafts that are more than 20 feet in depth shall require aggregate slurry backfill unless otherwise directed by the construction engineer.
37. For projects on county highways, the type of backfill shall be as required in the county highway permit.
38. Crushed stone screening meeting Table 34 of Section 8.43.2 of the *STANDARD SPECIFICATIONS* may be used as backfill material in sewer trenches where granular material is called for. (rev. 5/22/05)
39. Mechanical compaction is required for all open cut sewer work. The contractor shall consolidate all backfill by mechanical compaction per specification 2.6.14(B) of the *STANDARD SPECIFICATIONS*. Per specification, the initial compacted lift shall be two (2) feet, and shall be modified to read, "each subsequent compacted lift of material shall be one (1) foot". Costs are to be included in the unit price bid for the respective sewer. Settling the trench by flooding the backfill will not be allowed.

Where specified on the plans, the contractor shall install backfill with aggregate slurry per specification 8.43.8 of the *STANDARD SPECIFICATIONS*. In addition, if the City of Milwaukee Construction Supervisor determines that slurry backfill is required at a location not identified by the Design Engineer, and a bid item has not been included in the contract, the contractor shall be paid based on the schedule of fixed prices.

40. If the distance between the sewer main and water main is eight (8) feet or more from centerline to centerline, the contractor may use recycled Portland cement with the gradation of granular backfill for backfill material except where a water main crosses the sewer. Where a water main is encountered, the contractor shall use granular backfill in the sewer trench for a distance of twenty-five (25) feet, centered on the water main.

ABANDONMENT

41. This special provision for abandoned sewers, drains and sewer structures shall supersede all related portion of Section 3.2.24 of the *STANDARD SPECIFICATIONS*, Abandoned Sewers, Drains and Sewer Structures.

Sewer and storm water drains, which are to be abandoned, shall be properly bulkheaded with an 8-inch brick wall.

All sewers, storm water drains, and sewer structures, without regards to size, which are to be abandoned and have not been removed shall be filled with sand or an approved cellular concrete, unless otherwise indicated in the respective Contract Documents. Service shall be maintained in such sewers and drains until the Construction

Engineer, or his representative, shall order manholes, catch basins, and respective sewer lines that are no longer in use shall be bulk headed and abandoned. All castings of such abandoned structures are the property of the City of Milwaukee, unless otherwise indicated in the respective Contract Documents and shall be salvaged by the Contract and delivered to a designated City Facility. All abandoned manholes, catch basins, and other underground structures shall be removed to a depth of three (3) feet below the proposed or established grade or existing street grade, whichever is lower.

The cost of abandoning sewers, storm water drains and other respective sewer structures shall be included in the unit price bid for new sewers and sewer structures unless otherwise indicated in the respective Contract Documents. (rev. 8/22/11)

BEDDING

42. Class "C" Bedding (modified) differs from the standard section Class "C" Bedding. The minimum thickness of the bedding material under the barrel as shown in File No. 3 of the *STANDARD SPECIFICATIONS* shall be modified as follows:

6 inches under barrel when pipe diameter is from 36 inches to 48 inches.
7 inches under barrel when pipe diameter is 54 inches.
8 inches under barrel when pipe diameter is from 60 inches to 66 inches.
9 inches under barrel when pipe diameter is from 72 inches and larger. (rev. 3/17/03)

43. Gradation requirements for Bedding material listed in Table 32 of Section 8.43.2 of the *STANDARD SPECIFICATIONS* shall be modified as follows:

Gradation requirements for 3/8-inch crushed stone chips:

<u>Sieve sizes</u>	<u>Percent passing by weight</u>
1/2-inch	100%
3/8-inch	90-100
No. 8	0-50
No. 30	0-5

CURED-IN-PLACE LINING

44. Where cured-in-place liner is specified in the contract documents, the process shall consist of the installation of cured-in-place pipe (CIPP) formed by the insertion of a resin-impregnated flexible felt tube into the existing pipe. The materials and installation shall conform to ASTM F1216-06 *STANDARD PRACTICE FOR REHABILITATION OF EXISTING PIPELINES AND CONDUITS BY THE INVERSION AND CURING OF A RESIN-IMPREGNATED TUBE*.

The completed CIPP shall provide full flow capacity equal to at least 100% of the original capacity of the host pipe.

First time bidders are advised that if they are the apparent low bidder on this project, they will be required to attend a first time bidder meeting at a time and place determined by the commissioner. At this meeting, the contractor will be required to demonstrate to the satisfaction of the commissioner that the CIPP meets the specifications set forth in the contract documents, that the manufacturer of the CIPP has sufficient in-house engineering support and manufacturing quality control and that the installer has successfully installed the CIPP in wastewater collection systems.

45. Prior to the installation of the cured-in-place linings, the contractor shall remove mineral deposits and protruding taps from the inside walls of the sewers. The mineral deposits and protruding taps shall be removed to the extent

that they do not interfere with the lining achieving its maximum strength. In no case shall mineral deposits or protruding taps extend into the pipes over 1/8 inches. The contractor shall not damage the existing sewers while removing the mineral deposits or protruding taps. The cost of mineral deposit or protruding tap removal shall be included in the unit price bid for the cured-in-place lining. (rev. 1/18/07)

46. Any material, including mineral deposits displaced from the sewer by jet-cleaning, air/water blasting and protruding tap removal, shall be removed from the sewer. The contractor shall be responsible for disposing of the removed materials at a Department of Natural Resources (DNR) approved site. The cost of this shall be included in the unit price bid for the cured-in-place lining. The contractor shall clean the inner surface of the sewer by air, water or sand blasting in order to prepare the sewer for the cured-in-place lining. The cost of all work necessary to prepare the sewer for the installation of the lining shall be included in the unit price bid for the cured-in-place lining.
47. Prior to the installation of the cured-in-place lining the contractor shall repair structural defects such as cracks, concrete spalling, missing brick, any open holes or other sources of the ground water infiltration that could negatively impact the integrity of the liner. The contractor shall view the videotape and note where the repair work is needed. All work shall be repaired at these locations with proven construction methods approved by the construction engineer. The cost of this repair shall be included in the unit price bid for the cured-in-place lining. (rev. 1/18/07)
48. All connections for building sewers and drains of record have been shown on the plan. Prior to installation of the cured-in-place liner pipe, the contractor shall field verify by Closed Circuit TV (CCTV) that all active sewer connections have been identified and that only active or proposed sewer connections are to be reconnected. The television camera shall be equipped with a rotating head to allow for positive identification of active building services and drains. The contractor shall provide the engineer with a copy of the video exam and written report at least one week prior to the scheduled lining operations. The engineer will promptly review the exam for any discrepancies between the video exam and the plan.

The engineer may direct the contractor to perform dye-testing to determine whether a specific lateral is to be reconnected. The contractor shall again provide the engineer with a copy of the video exam and written report. The contractor shall also provide the City with the post installation video of the project. These video exams will become the property of the City of Milwaukee. The cost of all this work shall be included in the unit price bid for the cured-in-place lining. (rev. 1/18/07)
49. The contractor shall be responsible for obtaining any necessary licenses or any fees due for using the cured-in-place lining. The cost of the licenses or fees shall be included in the unit price bid for the cured-in-place lining.
50. The contractor shall install all products referred to on this contract or their equals in accordance with the requirements and recommendations of the product manufacturer for the conditions present at the site.
51. Steps in existing manholes may interfere with the installation of the lining. Any manhole steps that interfere with the lining installation shall be removed. The cost of removing and replacing the manhole steps shall be included in the unit price bid for the cured-in-place lining.
52. The contractor shall be responsible for obtaining any necessary City, County or State permits required for the successful completion of this project. All costs for obtaining shall be included in the unit price bid for the cured-in-place lining.
53. If the contractor damages the sewer during construction and is unable to complete the lining in a satisfactory manner, the contractor shall bear all costs associated with the dig-up and/or repair of the existing sewer damaged. No extra payment shall be made for this work.

54. The cured-in-place lining shall be placed through the spring line in the existing manholes.
55. The contractor shall submit independent third party test results, showing the short-term flexural modulus of the product to be used, to the Construction Engineer.

MANHOLE LINING

56. For manhole lining, the contractor shall apply material using approved equipment designed and manufactured by a material manufacturer for the specific application in accordance with the manufacturer's instructions.
57. The contractor shall apply manhole lining material to the manhole bench and to the vertical walls from the manhole bench to the bottom of the manhole frame. The pay length shall be in vertical feet to the nearest tenth of a foot from the bottom of the manhole frame to the spring line of the sewer pipe. When there is an existing internal manhole seal in good structural condition and the manhole seal is left in place, the pay length shall be measured from the bottom of the manhole seal to the spring line of the sewer pipe. The contractor shall trowel the full circumference of intersection of the manhole wall and bench to form a gradual slope from the manhole walls to the sewer channel. The contractor shall provide a smooth finish to the surface. The cost of this work shall be included in the unit price bid of the manhole lining.
58. The manholes to be lined on the contract are approximately 3.5 feet in diameter. While this information is believed to be accurate, the City does not guarantee the same. It is the responsibility of the contractor to verify the diameter of the manholes to be lined. No extra will be paid for an increase/decrease in manhole diameter width.
59. The contractor shall submit manufacturer's product data, including physical properties, surface preparation, repair application, curing and field quality control to the Construction Engineer at least 5 working days prior to the start of manhole lining work. The liner material shall be fiber-reinforced, spray-applied, a minimum of 1/2-inch thick and conform to the following:

<u>Property</u>	<u>Requirement</u>	<u>Per Spec.</u>
Min. Compressive Strength	9,000 psi at 28 days	ASTM C 109
Min. Tensile Strength	900 psi at 28 days	ASTM C 496
Min. Flexural Strength	1400 psi at 28 days	ASTM C 78
Shrinkage	0% at 28 days, 90% RH	ASTM C 596
Minimum Bond	2000 psi at 28 days	ASTM C 952
Applied Density	133 pcf +/-5 pcf or Manufacturer Recommendation	
Freeze/Thaw Resistance	100 cycles, No Visible Damage	ASTM C666, Method A

60. The contractor shall clean manhole walls and bench using a minimum of 1500 psi water spray to remove contaminants, dirt, debris and other foreign materials. The contractor shall remove loose or unstable material from the manhole structure to the satisfaction of the Construction Engineer. The cost of this work shall be included in the unit price bid of the manhole lining.
61. The contractor shall patch cracks, holes, and stop any active leaks or sources of water infiltration and inflow prior to manhole liner application using a cementitious or chemical grout. Apply grout in accordance with manufacturer's instructions. The cost of this work shall be included in the unit price bid of the manhole lining.
62. The contractor is responsible for ensuring that no extraneous material enters the sewer or manhole connections during the lining process.

63. The contractor shall not apply material for manhole lining if the air temperature is below 40 degrees Fahrenheit or if the air temperature is expected to drop below 40 degrees Fahrenheit any time during the period of 24 hours after application. The contractor shall not apply material for manhole lining to any frozen surfaces at any time.
64. If the contractor damages the manhole during construction and is unable to complete the manhole lining in a satisfactory manner. The contractor shall bear all costs associated with the dig-up and/or repair of the existing manhole damaged. No extra payment shall be made for this work.
65. The contractor shall not allow traffic on or in the area of the manhole for a minimum of 24 hours after final application of liner material.
66. The contractor shall provide the City with a post installation video examination of the manhole structures showing the entire depth of the lined portion of the manhole. These video exams will become the property of the City of Milwaukee. The cost of this work shall be included in the unit price bid for the manhole lining.

WATER USAGE

67. In any instance where water is used from a hydrant or other public water supply source, the contractor shall protect the public water supply by means of an appropriate backflow preventer. Where the hose or outlet will be above the elevation of the water source the contractor shall use a reduced pressure zone (RPZ) backflow preventer such as Watts series 909 or equal. If a $\frac{3}{4}$ " or smaller hose supply is required Watts series 8 vacuum breaker-backflow preventer or equal may be used. Where the hose and outlet will always be below the elevation of the water source, an atmospheric vacuum breaker such as Febco model 710/715 or equal may be used. The backflow preventer shall be connected to the hydrant in compliance with Section 2.8.12 of the Department of Public Works General Specifications and shall be self-supporting imposing no load on the hydrant.

WATER MAIN REPAIRS & ALTERATIONS

68. All water main repairs and alterations shall conform to the pertinent sections of the City of Milwaukee water main installation specifications. All water service work shall conform to the requirements of the City of Milwaukee water service piping regulations and specifications. The pipe and fittings for water main repairs or alterations shall be furnished by the City. All other materials required for water main repairs or alterations shall be furnished by the contractor. The cost of water main removal and all other work incidental to making the water main alteration or repair shall be included in the unit price bid for the alteration or repair.

The contractor shall notify the construction section prior to 9:00 am on the day preceding the water main alteration so that arrangements can be made for serving shut-off notices, making shut-offs and performing other required work. The Contractor shall pick up all necessary main materials at the Milwaukee Water Works stores division.

69. The connection of water service piping to a water main shall be made by the Milwaukee Water Works (MWW). The contractor shall first make application to the MWW on the standard form for water service agreement. Requests for connection shall then be made forty-eight (48) hours before the connection is to be made.

CLOSED CIRCUIT TELEVISION (CCTV) EXAMS

70. Closed Circuit Television (CCTV) Exams shall conform to the requirements of Chapter 7.1.2 of the *STANDARD SPECIFICATIONS*, except where modified herein.
71. The contractor shall supply all necessary equipment and materials and perform the work needed to properly complete the examinations and submit the reports and digital video discs (dvds). All equipment and materials shall be rated for use in the conditions present in the sewers to be examined. Sewers with an interior vertical dimension of 54-inches or greater shall be examined by man-entry and walk through. The cost of all work, equipment, and

materials required to perform the examinations and prepare all reports shall be included in bid items: Sewer Exams by CCTV (Man-Entry) and Sewer Exams by CCTV (Remote Camera), unless otherwise specifically stated in the special provisions.

72. The contractor will be required to handle or work around sewer flow during the examinations. If the contractor chooses to bypass or pump flow around any runs to be examined, all related costs shall be included in the respective unit price bid price. The contractor shall submit to the EES and, when appropriate, the MMSD requests to bypass or pump flow prior to performing the work. Sewer examinations shall not be performed during periods of wet-weather.
73. The contractor shall keep debris from entering the sewer as a direct result of the work and work practices under this contract. The contractor shall remove any materials and equipment that enter the sewer as a result of the examinations. At the end of each workday, the contractor shall be responsible for cleanup of all work areas.
74. In addition to the requirements of Chapter 7.1.2 of the *STANDARD SPECIFICATIONS*, each sewer examination and report pair shall include an identical visual, audio, and written identification of the following:
 - A. Start and end stations of all pipe defects and features, including:
 - I. Pipe collapsed
 - II. Pipe gull-winged or losing shape and extent thereof (amount of deformation)
 - III. Missing pieces of pipe, brick, or mortar (size and location by clocking).
 - IV. Longitudinal cracks (width of crack and location by clocking).
 - V. Circular cracks (width of crack and location by clocking).
 - VI. Pipe wall deterioration and defects.
 - VII. Bricks loose, shifting, or bulging (number of bricks and location by clocking)
 - VIII. Open joints (width of joint opening).
 - IX. Offset joints (offset in inches and location).
 - X. Cut in connection (if protruding, how far).
 - XI. Mineral deposits (size and location by clocking)
 - XII. Roots at joints (classified as heavy, medium or light and location by clocking).
 - XIII. Roots in connections (classified as heavy, medium or light).
 - XIV. Joint leaks (estimated infiltration by gallons per minute [gpm], location by clocking, and classified as clear or containing sediment particles).
 - XV. Crack leaks (estimated infiltration by gpm and classified as clear or containing sediment particles).
 - XVI. Deviations in horizontal or vertical alignment (i.e., bends and sags).
 - XVII. Changes in pipe cross-section.
 - XVIII. Any other defect or features that should be noted.
 - B. Depth of sewer flow and depth and type of deposits in the flowline of the sewer at each manhole and at stations where the depth changes by one inch or more.
 - C. Condition of the manholes including assessments of the iron, brickwork (noting number of courses needing repair), steps, corbel, barrel, and bench and measure-down depths of the manholes.
 - D. The meter shall be capable of reducing readings for reverse movement of the camera and be able to be manually re-zeroed for each sewer run. The output of this metering device shall be constantly displayed on the examination video footage
 - E. Total length of each run in stations and the measured distance between manholes. The distance between manholes shall be measured by surface grade taping. If the counter and taping distances differ by more than 3 feet per 100 feet, the run shall be re-televised at the contractor's expense. The taped distance shall be noted on the examination reports.

75. The contractor is solely responsible for developing and implementing a health and safety program for man-entry sewer examinations in the conditions present in the sewers to be examined. The contractor shall comply with all applicable federal, state, and local regulations, rules, and requirements relevant to this type of work. The health and safety program shall be based on the assumption that all sewers to be inspected are in service and that personnel working in these areas will be exposed to unusual hazards, including, but not limited to, explosive and toxic gases and infectious disease-producing organisms. The sewers and manholes shall be considered confined spaces and are subject to all federal, state, and local regulations, rules, and requirements governing confined space entry and entrance procedures.

The contractor shall contact the MMSD for information on known hazardous materials that are likely to enter the sewer through permitted industrial discharges. However, this information shall not be considered comprehensive with respect to the hazards likely to be encountered. The contractor is responsible for appointing an employee who is qualified and authorized to supervise and enforce compliance with the health and safety program.

The contractor shall have the right to abandon work at locations, if, in his professional opinion, the working environment is unsafe or there exists excessively high risk to the equipment. The contractor shall notify the EES immediately after abandoning any locations.

EROSION CONTROL

76. The erosion control item on this contract shall include an Erosion Control Implementation Plan (ECIP). The ECIP shall be submitted to the City Engineer, at least ten (10) working days prior to the scheduled start of work on the contract. The City Engineer shall review the ECIP for meeting technical standards and notify the contractor if the plan meets the standards within seven (7) working days. Work shall not start until the ECIP meets technical standards. The contractor shall be required to have a copy of the ECIP on the job site for the entire duration of the contract. The ECIP shall include, but not be limited to:

- A. A plan showing all locations of erosion control devices and other best management practices (bmp's).
- B. A written description of all erosion control devices and bmp's to be used.
- C. A written schedule of installing erosion control devices.
- D. A written schedule of construction operations related to implementing erosion control devices and bmp's.
- E. Written maintenance schedule for all erosion control devices and bmp's.

All costs associated with implementing the erosion control plan, such as furnishing, installing, maintaining, and removal of erosion control devices shall be included in the unit price bid for erosion control. There shall be no additional compensation for revising the ECIP or utilizing additional bmp's in order to comply with Chapter 290 of the City of Milwaukee Code of Ordinances. If the contractor is found not in compliance with the ECIP, the contractor will be subject to the penalties included in Chapter 290. A blank "Erosion Control Implementation Plan" application is in the bid document package.

For projects in paved, non-rural areas, the Soil Erosion Control Plan for non-rural areas (Plan File No. 51-5-62), revised and dated May 10, 1995, is part of the contract.

For projects in paved, rural cross-section areas, pedestrian ways, and unpaved areas other than channels, the Soil Erosion Control Plan for rural areas (Plan File No. 51-5-63), dated June 23, 1988, is part of the contract.

Prior to placing the inlet baskets and/or grate screens, the contractor shall report clogged catch basin drains to the Underground Operations section at (414) 286-3731 so that they can be cleaned.

SEWER EXAMS BY CCTV – POST CONSTRUCTION

77. The contractor shall provide the City of Milwaukee a post-construction report and closed circuit television (CCTV) exam of the sewers and manholes built on this contract. The City will promptly review the reports and exams and determine if any corrective action must be taken by the contractor. The contractor shall supply the city with digital video discs (dvds) and written reports documenting the examinations.

All sewers, drains, and manholes constructed on this contract, as well as the existing downstream run of sewer to the next downstream manhole, shall be examined by CCTV. The television camera shall be equipped with and utilize a rotating head to allow for proper examination of the reconnections to existing sewers, building sewers, and drains. The contractor shall also examine the most downstream 25 feet of all adjacent existing upstream runs of sewer.

The contractor shall provide a video exam of the manhole frame and adjusting rings, showing proper underpinning and internal seals, where applicable. Where permanent pavement restoration is postponed by the construction engineer, examinations of the manholes shall be performed within 5 days of completion of permanent restoration activities. At the discretion of the construction engineer, the contractor may request to extend the time of completion for a specific location if the contractor wishes to perform examinations for multiple locations at one time.

Additional CCTV specifications are located in the standard special provisions, plan file no. 52-4-51. These video exams will become the property of the City of Milwaukee. All costs associated with this work shall be included in the unit bid price for Closed Circuit Television (CCTV) Exam – Post Construction. If it is determined that corrective action is required, additional exams may be ordered by the construction engineer. No extras will be paid for this additional work.